

Agricultural Issues Center (AIC) Meeting January 14, 2004

Attendees:

Dan Sumner, AIC
Henrich Brunke, AIC
Richard Howitt, AIC
Duane Paul, need title
Lloyd Fryer, Kern
Alex Hildebrand, Delta
Kamyar Guivetchi, DWR
Ray Hoagland, DWR
Farhad Farnam, DWR
Lisa Beutler, CCP
Sarah Goldberg, CCP

Introduction

Kamyar reminded everyone that the study AIC has conducted for DWR was an effort to be proactive in getting at information that AB 2587 requires. But this study is not an explicit response to that legislation. DWR needs food forecast information for the Department of Food and Agriculture to do that. DWR does plan on doing the work required by the legislation after it has the required information from the Department of Food and Agriculture.

Kamyar explained that the full version of the AIC report will be included in the Water Plan Update 2003 Reference Guide. This will make the study fully transparent.

AIC staff explained that they had gone back to their raw numbers and created more tables. They explained that much of this was not included in the first draft because they were told to keep it to 7 pages. They are pleased the full study will be included and the report is now 30 pages. Every statement has a document behind it. They said they responded to the note Duane put together and it was helpful.

Discussion

Discussion during the meeting focused on a few key topics. Comments are grouped by topic (rather than chronologically) but there is overlap so the differentiation is not definitive.

- DWR staff were asked several times if the *Water Plan Update 2003* will address how much water is needed to have enough food in the year 2030.
(Lisa clarified that issues relating to the AIC study and DWR complying with the water code in Update 2003 were two separate issues and the focus of the day's meeting was the AIC study.)
 - It was explained that the Water Plan will not do this directly in the Public Review Draft of Update 2003 that will be released April 15, 2004, but the water code requirements will be met through Update 2003's phased work plan.

- One participant stated that without the number in question the Water Plan would be meaningless.
- Is the Water Plan (Update 2003) based on a premise that the amount of water going to agriculture in the future is constant?
 - Response: Yes, at year 2000 levels.
- Some participants had a general concern that the AIC study's basic conclusion- that with approximately 10% less water agricultural production would remain the same or increase slightly- was not plausible.
 - Change will happen at a similar rate that it has for the past 30 years. For example, drip [irrigation] is still on at 10% to 12% levels. The price of water would likely affect decisions to install drip irrigation. There might also be big shifts in pest control technology. An example of this kind of thing that is not touched on in the AIC study but that would be a paradigm shift would be genetics level shifts in crops. That type of factor is not considered in the AIC study.
 - Clarification: The AIC study looks at food and not biomass. This is a very important distinction to keep in mind.
 - Upon discussing food security Richard noted that today there is a problem that there is too much food. It is too cheap. People are obese. He said that his colleagues will not give an upper limit on food production because when you get into genetics people say the sky's the limit.
 - Response: This might be true about some commodities but not necessarily California's crops. It's problematic that there is an implicit assumption that water will be as available in 2030 as it is now. That there will be no constraints.
 - AIC response: The AIC study is explicit in its assumption that there will be 10% less water.
 - Additional comment: I still have some difficulty assuming that the economic environment will allow for a 10% reduction, including increasing urban and environmental demands, and the California will still be able to have equal food production with all these constraints.
 - How is the AIC contention plausible? How much applied water is not consumed by crops? If it's 20 percent, then logically there is only 20 percent more potential for efficiency. Advances with applied water versus consumed water have been so great that the AIC study is hard to understand.
 - Response: It appears that in the next 30 years agriculture has got room for improvement with food crops.
 - How much of excess applied water is being recovered and used? What's the potential to get at what is not already being recovered and reused? I don't think there's much potential left for applied water that's already being reused.
 - Response: The AIC study does not assume growth in irrigation efficiency at all. Irrigation efficiency is assumed to be the same. All the AIC numbers are on productivity of yields.
 - In response to the concern about the ability for agriculture to become more efficient: AIC staff reiterated numerous times in the meeting that they do not

know what the future will hold or what change will occur. But people have been predicting for decades that technological change will stop. If anything change has exceeded what even optimistic people thought. It could be that all the work of AIC and academics in their line of work will come to nothing. Just in the same way people today say that all the 'easy stuff' has been done, in 1950 people also said that additional efficiency was not likely because 80 percent of the 'easy stuff' had been done. The future can be looked at only by what is known from the past and the present.

- There was significant discussion on the vagueness of the legislation the AIC study was based upon.
 - It was suggested that the Water Plan Advisory Committee should have had more discussion regarding what the law was about and what analysis would actually be useful in planning for the future.
 - Its unclear if the law is concerned about trade-offs. For example better wheat control means more herbicide use and that might result in water quality problems. Is that something the law is concerned about?
 - It's unfortunate that AIC did the study when DWR didn't know the questions and so AIC had to figure the questions out and that's not fair. But what can we derive that is valuable?
 - We don't know what legislation is telling us to do. Everyone has an opinion. It's a shame that we didn't all agree ahead of time what to study
- What if the AIC study's wrong? What if more food cannot be gotten with the status quo? It might be helpful to think through the risks in betting this way and what the consequences could be, such as hunger and malnutrition.
 - One participant said that there was not time to wait and see because it takes at least 20 years to develop significant new sources of water.
 - AIC staff noted that this was not considered in their study.
- Regarding groundwater overdraft. Overdraft is at 3 MAF, taking that out to 25 years in future, is there sufficient capacity in the world system to compensate?
 - Response: The AIC study doesn't say that food will be available on the world market. It does say 2030. Remember that the bill explains less than it says.
- Land is not a controlling variable. The controlling variable is water. Regarding the shift of crops, cotton for example, when you have a billion more people in the world they will need clothes too. You can't stop one crop for another. Every 15 years there will be an additional billion people in the world. And what's happening in the rest of the world will affect the price of things here.
 - Response: Currently California imports most of what we eat.
 - Additional comment: Most food comes from groundwater.
 - The AIC study does not look at the world food market (and the impact that market might have on California's net imports and exports).
- Lisa asked if there anything else that should be extracted [from the AIC study]?

- Duane said no, but he'd like to see a changed study.
- Some participants said they'd like to see a continuum. And that the plausibility of the AIC conclusion would be aided if it was broken down a bit. This would help in getting clarity on plausible potential.
 - Response: That would be interesting but we can't do it for this study. That would require a few dozen teams of scientists. It would take a seriously survey.
 - What if you do it without numbers? You could discuss points on the curve.
 - Remember that the AIC study does not touch the issue of water use efficiency.
 - We could introduce this. But we take a zero assumption. We could discuss more some technology. It just isn't feasible do anything extensive.
 - This would be helpful for understanding in what areas there was just a little potential and areas where there is lots of potential.
- Given that DWR has to respond to this legislation, does AIC have any advice or anything to recommend?
 - Response: We thought we did respond to the legislation as written. We didn't do any psychological analysis of what was meant. That's in table one and table three and table four and five. With some underlying assumptions about trade, holding water use constant California will be in a larger export condition than we are now. As we read it we thought we responded to what it asked for.
 - Lisa noted there were some disconnects between what she heard group members talk about and what AIC characterizes.
 - Daniel responded by explaining that one could take each step AIC went through and do each one in more detail. He guessed that if someone did this in much more detail I'd expect refined answers but they wouldn't be that much different. I don't know what CDFA will do to this study. They don't have the in-house capability to do it and whether they have budget, I don't know. They might ask for volunteers.
 - Other comment: A DWR staffer said he'd like to see a micro level study. (This was macro.) What will happen if the cost of water / cost of production goes up? It would be interesting to look at trading partners / export partners / cost of production.
 - Climate change hasn't been discussed. We've got what's been postulated. We'll lose millions in snow storage, so that will result in less supply. Since the Water Plan doesn't propose to do anything about that loss, you might or might not produce more food per AF, but you won't have as much water.
 - The study should note that it did not consider climate change losses.
 - Response: The focus was production numbers with constant water. The AIC didn't look at other DWR assumptions.
 - How this should be handled with AIC and DWR should be made clear.
 - AIC agreed to include an explanation that says they didn't go back and change water supply assumptions.
- AIC will look into excess supply water that is already being recovered and reused. They have a baseline number they're starting with.

- Lisa asked participants to think about the following: Does legislation ask the correct question(s)? She acknowledged that need to make sure there's enough food and it's secure and that this legislation was a way to put that table on question. Are there mechanisms in the legislation for getting to that answer? Are there other things we should be looking at?
 - Response by Duane: I think the main difficulties include: 1) wording is obtuse at best. 2) Who ever authored the legislation did not understand very well both the general m  lee of general trends and lack of data available. I do think they are asking the right questions. The issue of whether there's going to be enough food to meet needs, is important. I don't think some of those issues have been adequately addressed and I think that is because there is a lack of data. AIC has had to make assumptions.

In closing Lisa asked AIC for advice for those who follow.

AIC said they gave it their best shot. More detail would be good. Maybe change the question a bit. The problem is that most food we eat is imported and most of what we make is exported.

Lisa summarized:

- 1) The AIC study will be in reference guide.
- 2) There's been a discussion of 4 or 5 critical things that are helping explain what's in the study -- California cropping patterns; Food fiber correlate able, efficiency gain consistent, Extrapolated on issues of risk.
- 3) AIC is providing more specific documentation.
- 4) A discussion on arrays of technology. There is interest in discussing the issue of balance.